



S/N 09/871,156

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

Applicant: BENSON et al. Examiner: JASON M. GREENE
Serial No.: 09/871,156 Group Art Unit: 1724
Filed: 05/31/2001 Docket No.: 758.1226US01
Title: FILTER STRUCTURE WITH TWO OR MORE LAYERS OF FINE FIBER
HAVING EXTENDED USEFUL SERVICE LIFE

AMENDMENT AND RESPONSE

Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

In response to the Office Action mailed 6 August 2002, please amend the above identified application as follows:

AMENDMENTS

In the Specification

Paragraph beginning on page 3, line 22 should read as follows.

a. -- We believe one mechanism by which the fine fiber layer obtains a substantially increased pressure drop results from the "filming over" phenomenon. As filtered particulate materials interact with the fine fiber and become trapped in the fine fiber mesh or web, the particulates, particularly if they are low volatility liquids, can form a liquid film completely filling an opening pore or space in the fine fiber mesh. As these areas in the mesh are filled with fluid, the pressure across the filter rapidly increases. The filming over property can also result from interaction between particulates and the fine fiber but simply results from the filling of the unoccupied space within the fiber web causing pressure increase. Having a layer on the downstream side that is greater in efficiency than the upstream side, by more than 3% preferably 5% or more, increases overall efficiency but does not reduce lifetime because the upstream layer and the substrate remove entrained particulate and reduce the tendency of the downstream fine fiber to plugging. One measure of defining lifetime can indicate that the filter structure has